

ABSTRACT OF THE DISCLOSURE

A projection exposure apparatus consists of: an illumination optical system, including a light source, for irradiating a mask; a projection optical system for projecting a hyperfine pattern image on a substrate; an optical integrator for illuminating the mask in a homogeneous illuminance distribution; and a luminous flux distributing member for distributing the luminous fluxes from the integrator into two luminous fluxes in two different directions for focusing intensity distributions over the Fourier transform surface or the surface in the vicinity thereof on two portions part from the optical axis of the illumination optical system.

An exposure method of exposing the mask patterns onto an exposed member comprises: a step of starting the exposure when setting a movable optical member in a first position; a step of switching the movable optical member from the first position to a second position; a step of shielding the illumination light during the switching process; and a step of finishing the irradiation of the mask with the luminous fluxes when an exposure quantity reaches a preset value.